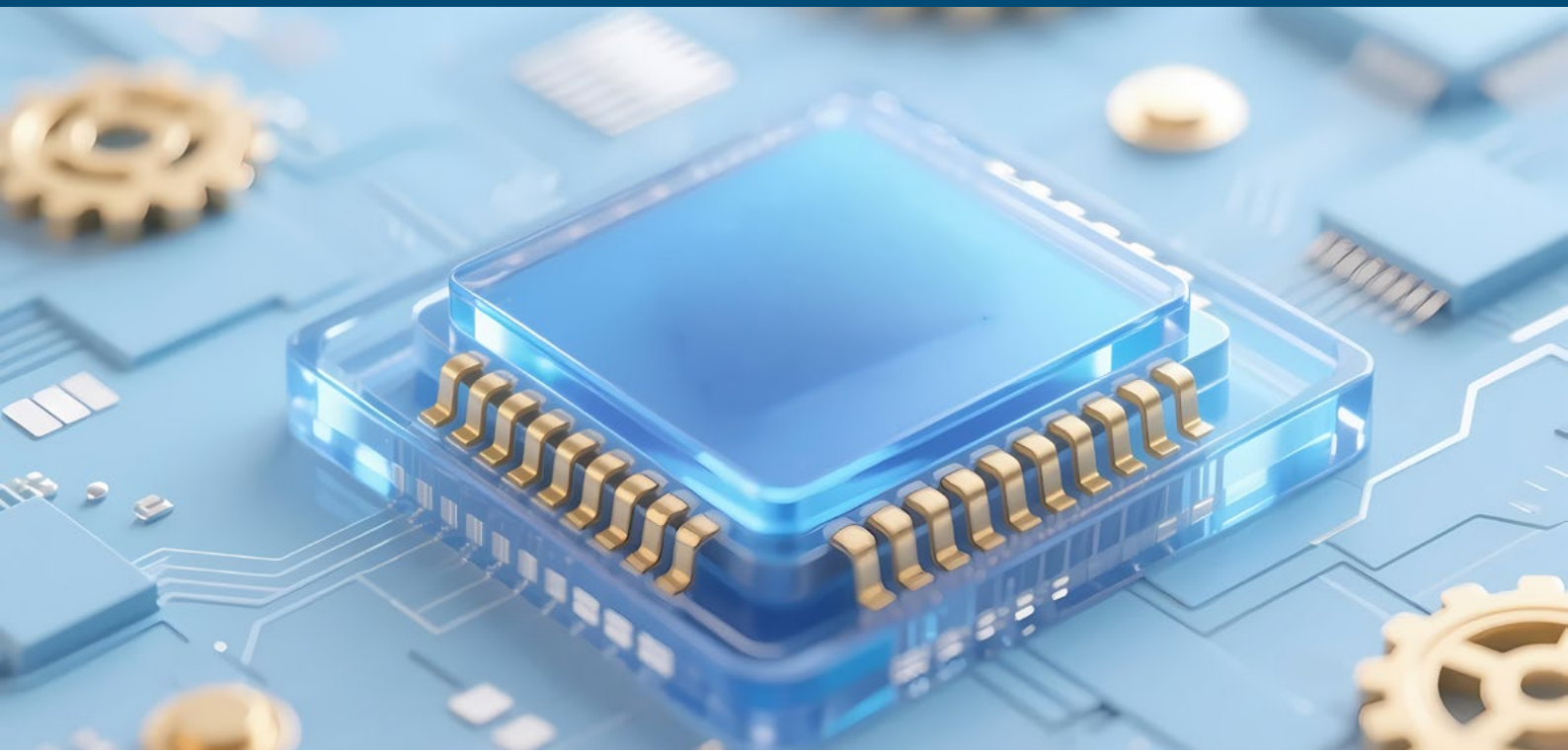
LS Channel



About eInfochips

eInfochips is a product engineering and semiconductor design services company offering ASIC/SoC design, Analog & Mixed- Signal IP development, FPGA design, and embedded engineering services across multiple industry segments.

eInfochips provides silicon-proven Analog IPs and custom design solutions for power management, data conversion, connectivity, and mixed-signal applications. The company enables customers to accelerate chip development and deliver high-performance, power-efficient semiconductor products.

eInfochips Advantages

- **30** Years of experience in system design
- **17** Design centres worldwide
- **75+** Successful Tapeouts and Silicon Bring up
- **100M+** Product deployments across globe
- **180nm to 18A** expertise

eInfochips A3ACPNLSC LS CHANNEL

LS Channel is driving high side NMOS. That NMOS switch is external to ASIC. So as per application, users can take different kinds of NMOS switches for different applications. It has been tested for 220nC of gate charges and can drive from DC to PWM up to 10KHz.

Automotive high-current switch/relay control (e.g. motor, solenoid, or actuator driving)

Low-side power MOSFET gate drive in automotive body/chassis electronics

Smart power distribution modules requiring current and voltage monitoring

Battery management or power switching systems needing shoot-through protection

Systems requiring short-circuit and overvoltage (high-VDS) protection with diagnostics

Multi-channel loan switching applications (Shared ADC/MUX sensing across channels)

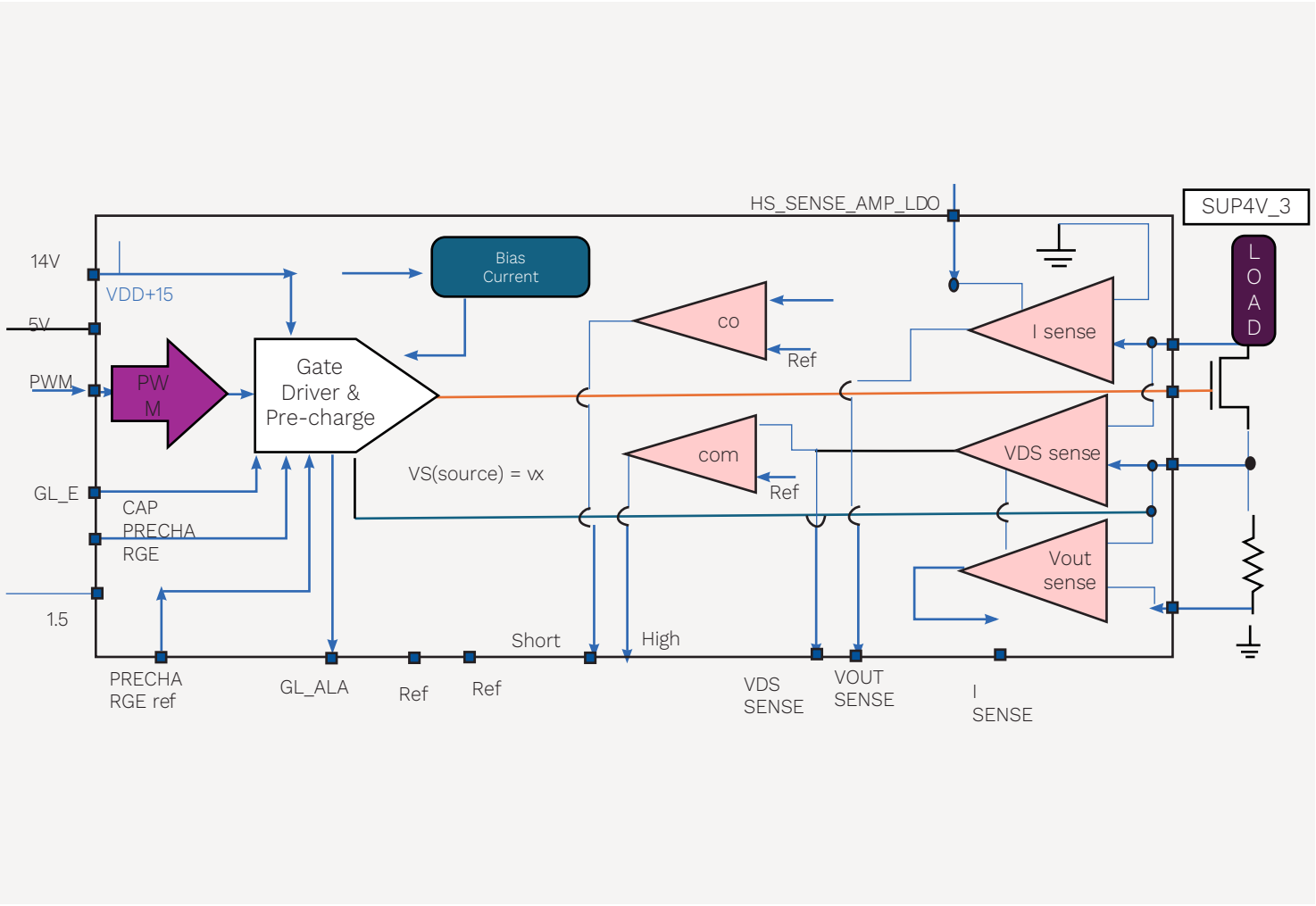


Fig. Block diagram

Features

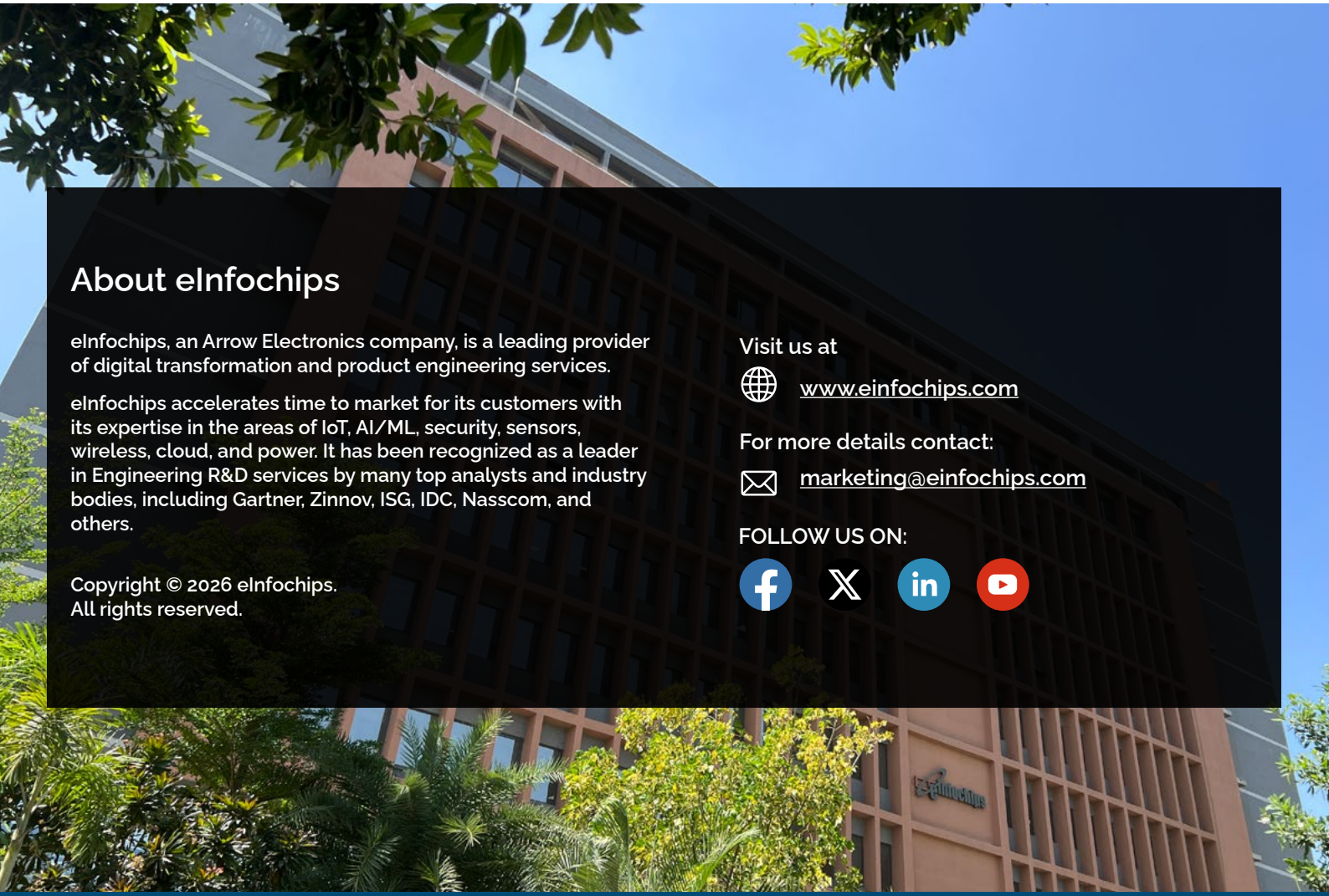
- Operating range: –40°C to +150°C
- 1.2V precision reference (low drift, high PSRR, low noise)
- Trim support for reference accuracy
- Buffered output option
- Drives external NMOS gate charge up to 220nC
- DC to PWM operation, up to 20kHz (unshared) / 10kHz (shared channel)
- Integrated dead-time generation to prevent shoot-through
- Three integrated sense amplifiers: current (gain 8), VDS (gain 6), Vout (gain 1/4–1/12)
- Shared ADC with analog MUX for multi-channel signal digitization
- Short-circuit and high-VDS alarm comparators
- Self-test capability for sense-amplifier diagnostics
- Capacitive pre-charge mode for high-capacitive-load startup
- Gate leakage detection (100µA threshold)

PWM Input-Output Voltage Characterization

- **PWM ON:** Output voltage of **1.207 V** across the evaluated input range
- **PWM OFF:** Output voltage ranges from **1.537 V to 3.903 V** for VIN **= 4 V to 32 V**
- **Operating Condition:** TT corner, **TJ = 27°C**
- **Output Response:** Simulated output closely follows the expected input-dependent voltage relationship

Current Sense Amplifier – Input/Output Characterization

- **Input Voltage:** 15.74 mV to 15.86 mV
- **Amplifier Gain:** 6 V/V
- **Expected Output Voltage:** 94.44 mV to 95.16 mV
- **Simulated Output Voltage:** 91.48 mV to 93.63 mV
- **Operating Condition:** TT corner, **TJ = 27°C,** VIN = 4 V to 32 V



About eInfochips

eInfochips, an Arrow Electronics company, is a leading provider of digital transformation and product engineering services.

eInfochips accelerates time to market for its customers with its expertise in the areas of IoT, AI/ML, security, sensors, wireless, cloud, and power. It has been recognized as a leader in Engineering R&D services by many top analysts and industry bodies, including Gartner, Zinnov, ISG, IDC, Nasscom, and others.

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